

CENTER OF PLANNING AND ECONOMIC RESEARCH

INPUT - OUTPUT TABLE OF THE GREEK ECONOMY
(Year 1960)

By
Dr. A. KOUTSOYIANNIS
Associate Professor of Economics

in association with
A. GANAS (M. Sc., Econ.)

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P R E F A C E

The present publication contains the Input-Output Table of Greece for the year 1960. This table is the revised version of a preliminary input-output table, which had been rapidly prepared on engineering information to serve as a tool for the macroeconomic elaboration of economic development programmes of Greece.

The table of "engineering coefficients" has been subsequently extended after consultation with the Harvard University, with which the Center of Planning and Economic Research is collaborating.

Apart from its other uses (for programming etc.) the input-output table is the necessary tool for carrying out a wider project aiming: first at the comparison of the structure of the economies of the European Common Market countries, and second at a comprehensive study of the possibilities for import substitution in Greece.

The methodology of the compilation of the input-output table is being published in English so that foreign experts on the subject can comment on it, and foreign institutions, which have expressed their interest in it, can have copies. The methodology will be included in the Greek publication of the project, which will be available in the near future.

The opinions expressed and the conclusions drawn are the author's and do not necessarily represent those of the Center of Planning and Economic Research, which sponsored the study.

INTRODUCTION

The Input-Output Table of Greece for the year 1960 has been compiled at the Center of Planning and Economic Research in the course of a two-year period (1965-1966). It is the outcome of a team in which the following persons participated:

- 1) A. Koutsoyiannis (Project Director)
- 2) A. Ganas (Associate Project Director)
- 3) Research Assistants: G. Matthaios

Th. Georgakis

A. Fokas

L. Michaelidis

P. Andonopoulos

A. Tragakis

N. Proïmaki

J. Jovanis

A. Diabolitsis

P. Kavadias

- 4) A. Avramopoulos (Agriculturalist)
- 5) S. Skourtis (Civil Engineer)

The main sources of information were:

a) The Annual Survey of the Manufacturing Industry for 1960, published by the National Statistical Service of Greece.

b) Unpublished input-output studies on various industries prepared by the Research Department of the Graduate

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School of Industrial Sciences.

c) Published data of the Federation of Greek Manufacturers and of the Chamber of Commerce.

d) The Trade Yearbook of Greece, published by the National Statistical Service.

e) Unpublished information of the Ministry of Agriculture and the Ministry of Industry.

f) Sampling studies conducted by the Center of Planning and Economic Research for various sectors.

1960 INPUT-OUTPUT TABLE OF THE GREEK ECONOMY

The attached table is the revised version of a preliminary input-output table (of a 29X29 sectoral breakdown) which had been rapidly prepared to serve as the basis for the development programme of Greece, compiled by the Center of Planning and Economic Research.

The revised version gives a 50X50 sectoral breakdown. The division of the Greek Economy into productive sectors is based on the standard classification of the National Statistical Service of Greece. Table 1 includes information on the correspondence between the sectors of the Input-Output Table and the sectors of the Statistical Service.

The Input-Output Table has been compiled by column, i.e. for each sector we estimated the value of products (value of inputs) which it purchases from other sectors in order to produce its own output.

Thus the column equation of each sector is :

$$X_j = \sum_i X_{ij} + V_j$$

where :

X_j = total product of the j^{th} sector.

X_{ij} = value of commodity i used in sector j .

V_j = total value of primary inputs (value added) in sector j .

The final demand columns have been estimated from independent studies: a) on private consumption, b) on Government consumption, c) on investment, and d) on exports.

The consistency of the table requires that the sum of each column be equal to the sum of the corresponding row. The row equation shows the product sales of each sector to all other sectors (for the production of their own output) and to the final demand.

Thus the row equation of the i^{th} sector is :

$$X_i = \sum_j X_{ij} + F_i$$

where :

X_i = total value of product of commodity i.

X_{ij} = value of commodity i used in sector j.

F_i = final demand of commodity i.

It is obvious that the following equation must be satisfied

$$X_i = X_j$$

since the total output of a sector (X_j) must be allocated either to interindustry uses or to final demand.

Differences between X_i and X_j have been inevitable due to the method of compilation of the Input-Output Table. When such differences were observed, we revised our estimates of

the interindustry flows, after careful investigation of the possible sources of error . . In some cases we included the differences in "investment", considering it as a change in stocks.

The product is estimated at producers' prices and at market prices. Product at producers' prices includes trade and transport expenses. Product at purchasers' prices is the product at producers' prices plus indirect taxes and less subsidies.

Value added includes all income items of the sector. It is split into two components:

a) Wages and Salaries, including the contribution of employers to social security organizations.

b) "Other Value Added", which includes interest, rents, depreciation and profits. Indirect taxes are given in a separate row of the table.

Data on labour inputs have been collected from the producing units. "Other Value Added" is the residual between total output and total inputs.^{1/}

$$1/ \quad K_j = X_j - \sum_i X_{ij} - L_j$$

where : K_j = "other value added" in sector j, i.e. interest, rents, depreciation and profit.

L_j = input of the primary factor labour in the jth sector.

The output of each sector includes in most cases the principal commodities corresponding to the sector, plus those goods produced as secondary products by firms of other sectors. The output thus includes : a) production for sale, b) production for intra-industry use, c) production for own-consumption.

Intra-industry transactions have been included in the main diagonal of the input-output table.

Imports are classified to the sector which would produce them as a principal product in their country of origin. That is to say, imports of agricultural products have been added to the corresponding column of the agricultural sector to give the "Total Supply" of agricultural commodities in the Greek economy.

$$S_j = X_j + M_j$$

where : S_j = total supply of commodities of the j^{th} sector.

X_j = domestic production of the j^{th} sector.

M_j = imports of commodities similar to the product of the j^{th} sector.

No attempt has been made to split imports into competitive and non-competitive groups in the 1960 input-output table.

Imports of merchandise are estimated at their C.I.F. value. In a separate row we give an estimate of indirect taxes

on imports. However, the value of imports does not include trade and transportation margins. These margins are included in the inputs of the j^{th} sector from the transportation and trade sectors respectively.

Imports are distributed to users (final or intermediate) along with the domestic supply of the same (or similar) products.

The Government activity is treated as part of final demand (government consumption), with the exception of health and education which have been included together with similar private activities in the "Other Services" sector. Salaries of public servants have been counted as part of the output of the "Other Services" sector, and as an "input-purchase" by the Government from that sector.

Final demand includes (a) consumers' expenditure, (b) public authorities' current expenditure on goods and services (c) gross domestic fixed capital formation and the value of changes in stocks and (d) exports of goods and services.

a) Private consumption includes purchases from the market as well as the value of goods produced by consumers.

b) Government consumption includes the expenditures of the Central Government, the Local Authorities and of Government Organizations, excluding (a) nationalized industries, which are classified in the corresponding sector and (b)

health and education expenses which are added to similar private activities of the "Other Services" sector.

Government expenditure includes current expenditure on goods and services, including the services of government employees. The figures exclude (a) expenditure on grants (b) subsidies, (c) interest payments and other transfers, (d) expenditure on fixed capital assets and stocks, loans and loan payments.

c) Investment includes capital assets (new buildings, vehicles, plant, machinery, tools and other equipment) either for replacing or adding to the stock of existing capital assets. It also includes estimates of changes in stocks of some important commodities (olive oil, tobacco, cotton, etc.). Expenditure on maintenance and repairs is excluded.

d) Exports are sales of both merchandise and services to the rest of the world by Greek residents. The value of commodity exports is estimated F.O.B.

Taxes include all indirect taxes paid to the Central Government and related to the volume of production or of trade in particular goods and services. They also include taxes paid to local authorities.

Subsidies include payments made by public authorities to a producer or trader with the object of reducing his selling price below the factor cost of production.

The value of the output of the transport and of the trade sectors is measured by the gross margin on the goods transported or handled through trade channels. Thus the output of these two sectors is equal to the gross value added (gross domestic income) generated by these activities, plus the cost of the goods and services they use themselves in providing the "transport services" and "trade services". The cost of the commodities transported or traded is not included in the output of these two sectors. By this treatment, we consider the transporters and the traders as agents middlemen of the producers, who are regarded as selling directly to the industries or to the final buyers.

All transactions are recorded at the prices paid by the purchaser (industry or final buyer). Purchases by firms do not however include retail-trade margins (as well as transport expenses involved in the distribution of final demand products to final buyers). It is thus obvious that the figures within each row are not on the same price basis and are not therefore directly comparable: the price of one unit of output bought by another industry is lower than the price of one unit of output (of the same sector) bought by a final buyer. Consequently, from the value flows (value figures) of each row we cannot deduce the volume (quantity) of the output allocated to other industries and to final buyers.

GENERAL METHODS

The general procedure followed in compiling the Input-Output Table may be outlined as follows:

First. We estimated the domestic output (X_j) of each sector, with various methods depending mainly on the availability of data. The method for this estimation is summarized for the main sectors of the Greek economy in the separate paragraphs dealing with the sectoral studies.

Second. Imports of the same or similar to the j^{th} sector's products were added to the domestic product to give the total supply of commodities of the j^{th} sector,

$$S_j = X_j + M_j = \text{TOTAL SUPPLY}$$

where: S_j = Total supply of commodities of the j^{th} sector.

X_j = domestic production of the j^{th} sector.

M_j = imports of commodities similar to the j^{th} sector's.

Third. For each sector we estimated the value of inputs required to produce its output. In other words, we estimated the value of the purchases of each sector from other sectors, as well as its purchases of primary inputs. Thus we estimated the "column inputs" for each sector, according to the following equation:

$$X_j = \sum_i X_{ij} + V_j$$

where: X_{ij} = value of product of the i^{th} sector used in the

production of the j^{th} sector.

V_j = value of primary inputs in the j^{th} sector .

Fourth. Independent studies were conducted for the components of the final demand, i.e.

$$F_i = C_{pi} + C_{gi} + I_i + E_i$$

where: F_i = total final demand of commodity i

C_{pi} = private consumption of commodity i

C_{gi} = government consumption of commodity i

I_i = investment of commodity i

E_i = exports of commodity i .

Fifth. The final step was to carry out the usual consistency tests of the table, according to which the column-total of each sector is equated to its row-total. It should be noted that the row-wise sum of each sector gives the total demand for the product of the sector :

$$X_i = \sum_j X_{ij} + F_i = \text{TOTAL DEMAND}$$

where: X_i = total demand of commodity i

X_{ij} = total intermediate demand of commodity i

F_i = total final demand of commodity i .

Thus, the consistency test consisted in comparing the independent estimates of the levels of output and of the imports, with the estimates of intermediate and final demand for each sector's output:

$$X_j + M_j = \sum_i X_{ij} + F_i$$

or TOTAL SUPPLY of i = TOTAL DEMAND of i .

In this stage of the work numerous adjustments were made to the original estimates of inputs and also to the estimates of the levels of domestic production, so as to render consistent the estimates of total demand and total supply for each sector's commodity.

SECTORAL STUDIES

I. AGRICULTURE

The study of the agricultural sector was carried out by a team of agriculturalists and agricultural economists under the direction of Mr. N. Avramopoulos.

The output of agriculture is based on Ministry of Agriculture estimates of the volume and value of the various crops. It includes the value of total production, i.e. the value of the product sold in the market as well as the value of the product consumed by the producers, estimated at farmer's prices.

The agricultural sector has been divided into six sub-sectors comprising the following crops:

1. Industrial Crops: 1) Tobacco, 2) Cotton, 3) Sesame, 4) Sunflower 5) Sorghum (broom) 6) Ground-nuts 7) Sugar beets 8) Flax for fiber, 9) Aniseed 10) Crocus 11) Pumpkins 12) Hops 13) Red pepper.
2. Wheat and other cereals: 1) Wheat 2) Barley 3) Oats 4) Rye 5) Rice 6) Maize 7) Millet 8) Sorghum 9) Broad beans 10) Lentils 11) Lathyrus 12) Peas 13) Chick Peas.
3. Fruit trees: 1) Orange trees 2) Lemon trees 3) Tangerine trees 4) Bitter-orange-trees 5) Citron trees 6) Pergamot trees 7) Punemelo trees 8) Apple trees 9) Pear trees 10)

Peach trees 11) Apricot trees 12) Cherry trees 13) Quince trees 14) Plum trees 15) Mulberry trees 16) Fig trees 17) Pomegranate trees 18) Medlar trees 19) Banana trees 20) Almond trees 21) Walnut trees 22) Hazelnut trees 23) Pistachio trees 24) Chestnut trees 25) Carob trees .

4. Olive Groves

1) Olive trees

5. Vineyards: 1) Grapes for wine 2) Grapes for table use 3) Currants 4) Sultanas 5) Other raisins.

6. Vegetables 1) Melons 2) Watermelons 3) Potatoes 4) Sweet Potatoes 5) Cabbage 6) Cauliflower 7) Lettuce 8) Chicory, Endive 9) Spinach 10) Onions 11) Garlic (green and dry) 12) Peas, broad beans (green) 13) Beets (red) 14) Celery 15) Carrots 16) Leeks 17) Tomatoes 18) Green beans 19) Squash 20) Cucumbers 21) Eggplants 22) Chillies 23) Okra 24) Pickling cucumbers 25) Onions for seed 26) Artichokes 27) Strawberries 28) Asparagus.

A separate study has been conducted for each one of the above crops.

The inputs for each crop were computed from technological coefficients (per stremma) derived from case studies conducted by the Ministry of Agriculture. Supplementary information was collected from studies of the Agricultural Bank of Greece and of the National Statistical Service.

The following notes should be born in mind when examining the input-output relationships of the agricultural sectors.

a) The input from the sector "livestock" includes manure as well as the value of the work of animals (mainly ploughing and transportation services). It should be noted that working animals belong to the farmers, and therefore this input is an "imputed" input, which should actually be computed as an income item under "other value added". However, since "Livestock" is treated as a separate sector, the value of the work of animals is one part of the sector's output, which is "sold" as an input to the other agricultural sectors.

b) The labour input includes (apart from wages actually paid) the cost of work of self-employed farmers, evaluated at the current wage rate in each region of the country.

II. LIVESTOCK-FISHING-FORESTRY

The output is based on data of the Ministry of Agriculture and of the National Statistical Service. It includes the value of the product sold in the market as well as the value of the product consumed by farmers.

The output of "Livestock" includes an estimate of the value of the manure and of the work of working animals (ploughing and transportation services).

The output of "Fishing" includes the value of the fish landed from Greek fishing vessels.

The output of "Forestry" apart from the marketed forestry products includes an estimate of the firewood collected freely by adjoining villages and of the feed stuff of animals, the latter being "sold" to the "Livestock" sector.

The purchases by the "Livestock" sector from other sectors has been estimated from coefficients (per animal) based on information of the Ministry of Agriculture and on information relating to output of various sectors and to imports (output of the industries producing animal feed stuff, imports of animal drugs etc.).

The estimate of inputs into "forestry" and "fishing" is very rough, since there is little or no information available about the purchases made by the fishing and forestry industries.

III. MINING AND QUARRYING

The estimation of the gross output and of the interindustry purchases of this sector has been based on data of the Statistical Service, of the Ministry of Industry and on information of individual firms.

The reliability of the estimates is not high, especially with respect to the interindustry inputs.

It should be noted that the gross output of this sector, (apart from the product produced in organized mines and quarries) includes an estimate of quarrying commodities (sand and stone) collected freely or produced on the spot of the construction works (mainly road construction). Such information was available from the study of the sector "Construction".

IV. MANUFACTURING INDUSTRY

G r o s s O u t p u t

The gross output of the manufacturing industry was estimated by two methods:

Method A.

The firms of each industry have been grouped in two categories: a) The "major industry" including firms employing 10 or more persons. b) The "small industry" (or "handicraft industry") including establishment employing up to 10 persons. The output of these groups was estimated separately as follows.

The gross output of the "major industry" was taken from the published data of the National Statistical Service ("Results of the 1960 Annual Industrial Survey"). This has been adjusted to include the value of products produced by firms and used subsequently as an input by the same or other firms of the same industry (intra-industry transactions).

For the small industry's product no published data were

available. An estimate was therefore attempted on information of the Ministry of Coordination and the National Statistical Service. From these sources we were able to find the percentage share of the small industry to the total Value Added of each sector. Subsequently the Value Added of the small industry was transformed into gross product value, on the basis of Gross Output/Value Added coefficients estimated from our sample of firms of small size (stratum 0).^{1/}

The total gross output (X_j) and total value added (V_j) of each industry was computed as the sum of the corresponding values of the major and the small industry:

$$X_j = X_j (10+) + X_j (1-9)$$

$$V_j = V_j (10+) + V_j (1-9)$$

where: $X_j (10+)$ = gross product of the big firms of the j^{th} sector.

$X_j (1-9)$ = gross product of the small firms of the j^{th} sector.

$V_j (10+)$ = value added of the big firms of the j^{th} sector.

$V_j (1-9)$ = value added of small firms of the j^{th} sector.

^{1/} The sample of firms has been stratified into four levels according to the number of employees, as follows :

Stratum	Number of Employees
0	1-9
I	10-19
II	20-49
III	50 and over

Method B.

To check the above estimates of the levels of gross output of each industry we pursued another approach. For each sector we compiled a list including the commodities being produced by the firms of the sector and we computed the value of each product from various sources of information. For the products for which published data were not available special estimates were made on the basis of family budget information, or on information provided directly by the main producers of the particular commodities. This was very tedious work but the results turned out to be very rewarding for two reasons: First, from the information collected on a commodity-by-commodity basis we were led to a meaningful adjustment of the estimates of the X_j 's arrived at by the first approach. Second, in this way we managed to have a better overview of the production as well as of the allocation patterns of the output of each industry. This, in turn, helped enormously in conducting the consistency tests of rows and columns of the Input-Output Table.

Our following task was to split the total level of gross output of each industry into the part produced by each of the four strata in which our firm sample was divided. This was necessary for the computation of the interindustry flows of the table.

The levels of gross output of strata III (50 + employees) and 0 (1-9 employees) were known separately, the first from information of the National Statistical Service, and the second from our own estimates discussed above. The gross product of the remaining two strata (I and II) was estimated from the difference between total output of the industry and the output of strata 0 and III. Subsequently this residual difference was allocated to each of the strata I and II according to their respective employment.

Thus, for each industry's output we have the following breakdown:

$$X_j = X_j(0) + X_j(I) + X_j(II) + X_j(III)$$

where: 0 = stratum 0, i.e. firms with 1-9 employees

I = stratum I, i.e. firms with 10-19 employees

II = stratum II, i.e. firms with 20-49 employees

III = stratum III, i.e. firms with 50 + employees

I n t e r i n d u s t r y F l o w s (I n p u t s).

The interindustry flows of the Manufacturing Industry, i.e. the purchases of each industry from all other industries, were estimated from a sample of 2,070 firms, out of which 1,325 belong to the "major" industry and 745 to the "small" industry. In most cases this sample has been supplemented by additional information on individual firms derived from sectoral studies conducted by the Research Department of the Grad-

uate School of Industrial Sciences.

The sample of the 1,325 firms covers 71.2% of total gross output and 69.5% of total value added of the "major" manufacturing industry. The sample of small firms covers only 15% of the gross output and 7.3% of the value added of the corresponding stratum (0). The degree of coverage varies from industry to industry as well as from stratum to stratum. The coverage of the "major" industry is considered satisfactory for all sectors, while the coverage of the sample of "small" industry is rather inadequate, as can be verified from Table 2.

From the data of the sample we estimated input-output coefficients for each stratum, using the standard Leontief method, according to which the a_{ij} 's are given by the formula:

$$a_{ij} = \frac{X_{ij}}{X_j}$$

To find the interindustry flows these coefficients have been multiplied by the level of gross product of each stratum. For example, for the interindustry flows of stratum II, these were estimated as follows:

$$X_{ij}(\text{II}) = a_{ij}(\text{II}) X_j(\text{II}) \text{ etc.}$$

The total purchases (X_{ij} 's), of sector j from the sector i were computed by adding the corresponding flows of each stratum, i.e.

$$X_{ij} = X_{ij}(0) + X_{ij}(I) + X_{ij}(\text{II}) + X_{ij}(\text{III})$$

Table 2: Percentage Coverage of Sample of 2,070 firms

Code No.	Sectors	Gross output of Sample as % of Total Output		Value Added of Sample as % of Total Value Added	
		0 1-9	1-II-III 10+	0 1-9	I-II-III 10+
20	Food Industries	18.9%	91.3%	18.8%	81.4%
21	Beverage Industries	2.4%	73.8%	2.0%	74.6%
22	Tobacco	-	46.5%	-	50.1%
23	Textiles	17.8%	63.3%	17.8%	67.9%
24	Clothing and Footwear	0.4%	44.5%	0.4%	41.2%
25	Wood and Cork	1.1%	40.0%	1.2%	37.7%
26	Furniture	0.7%	59.6%	0.7%	61.6%
27	Paper and Paper Products	3.4%	92.3%	5.0%	94.8%
28	Printing-Publishing	1.0%	57.8%	0.7%	68.7%
29	Leather	1.5%	70.3%	1.4%	68.2%
30	Rubber Industries	11.1%	100.0%	7.7%	100.0%
31	Chemicals	73.5%	67.1%	22.2%	77.3%
32	Oil Refining	40.0%	100.0%	33.3%	100.0%
33	Cement & Other Constr. Materials	11.9%	63.6%	11.9%	57.3%
34	Basic Metal Industry	37.5%	98.1%	33.3%	97.2%
35	Metal Products	0.4%	67.6%	0.4%	69.5%
36	Machinery (non electrical)	3.7%	51.5%	4.0%	50.8%
37	Electrical machinery and appl.	0.7%	69.5%	0.6%	68.2%
38	Transport Equipment	1.0%	40.4%	0.8%	51.2%
39	Miscellaneous Industries	2.4%	62.6%	2.1%	66.3%
T O T A L		15.0%	71.2%	7.3%	69.5%

The above procedure was considered as more appropriate than the standard statistical procedure; by the latter averages are estimated from the sample and then multiplied by the total number of firms in the stratum. The reason for not utilizing this method was that the samples were not representative of the population (with the exception of the data of stratum III), and thus the extrapolation of sample averages to the total number of firms of each stratum would lead to unacceptable results.

V. ELECTRICITY-GAS-WATER

Gross output and input data for electricity and gas were obtained from the Public Power Corporation and the Gas Corporation.

For the "Water" sector we obtained detailed information only for the Athens and the Thessaloniki areas.

So far as water consumption and its cost of distribution in the other urban and semi-urban areas, an estimate was attempted on the basis of three questionnaires for the cities of Volos, Larissa and Corfu. Average input and output coefficients of these questionnaires were related to the number of inhabitants of the respective cities. Thus the inputs and output were computed on a per capita basis. These coefficients were multiplied by the urban and semi-urban population of all other regions of Greece. It should be noted that the output

of the "Water" sector includes an estimate of the cost of irrigation in the "Agriculture" sector; for this cost information was available from the sectoral studies of "Agriculture".

VI. CONSTRUCTION AND PUBLIC WORKS

G r o s s O u t p u t

The gross output of this sector includes the value of gross investment in roads, buildings, land improvements and other infra-structure works. The figures, adjusted as follows, are consistent with those published in the National Accounts.

Table 3. Fixed Investment in 1960

	National Accounts	Input-Output	Difference
Buildings	8,386	8,565	The difference is due to the real value of housing as against the construction value approved by the government. The difference is due to the subtraction of the value of animals of reproduction, reforestation, etc.
Other construction	5,475	4,861	
T O T A L	13,861	13,426	
Maintenance	-	1,676	
GRAND TOTAL	13,861	15,102	

The value of maintenance includes an estimate of road maintenance expenditures provided by the Transport Section of KEPE, as well as an estimate of the machinery installation costs and repairs of firm buildings.

I n p u t s

The purchases of this sector from other sectors have been estimated by a team of engineers and economists under the direction of Mr. S. Scourtis. The various types of construction have been divided into seven groups as follows:

- 1) Building Construction
- 2) Land improvements
- 3) Other agricultural construction
- 4) Water and sewage works
- 5) Road construction
- 6) Construction activity by Public Corporations
- 7) Other construction

The value of the various types of construction are given analytically in table 4.

The interindustry flows for each of the above groups of construction works have been estimated with various methods depending on the availability of data. These methods are outlined below.

1. Building construction

Building construction constitutes 57% of the total output

Table 4. Construction and Public Works : 1960

	Sub-Totals (mn. dr.)	TOTALS (mn.dr.)
1. BUILDING CONSTRUCTION		8,565
1. Agricultural buildings	479	
2. Industrial buildings	222	
3. Shops	1,239	
4. Housing	5,624	
5. Hotels	330	
6. Other buildings (hospitals, schools etc.)	671	
2. LAND IMPROVEMENTS		619
3. OTHER AGRICULTURAL CONSTRUCTION		876
Irrigations works		
Agricultural roads		
Drainage works		
4.. WATER & SEWAGE WORKS		529
5. ROAD CONSTRUCTION		1,713
6. CONSTRUCTION ACTIVITY BY PUBLIC CORP.		535
Electricity (A.E.H.)	232	
Communications (O.T.E.)	303	
7. OTHER CONSTRUCTION		589
Public Railways (and H.E.M., E.H.Σ)	114	
Olympic Airways	33	
Ports	94	
Manufacturing Industry	77	
Education	17	
Public Administration	102	
Mining-Quarrying	76	
Tourism	65	
Other construction works	11	
8. REPAIRS		1,676
T O T A L	-	15,102

of the construction sector.

Housing apartments (5,624 mn. drach.) are the most important component of building construction. Housing construction was divided into three sub-groups: a) houses with one storey b) houses with two-three storeys, c) houses with more than three storeys. For each subgroup analytical cost estimates have been carried out, based on engineering information.

The estimates of inputs for the other categories of building construction have also been based on engineering coefficients.

2. Land Improvements.

The total value of this type of investment amounts to 619 mn. drachmae. Analytical cost data for works of 305 mn. drachmae were collected directly from various records of the Agricultural Bank and the Ministry of Public Works. Average coefficients were estimated and subsequently applied to the total value of land improvements.

3. Other agricultural construction.

The value of these investments (including irrigation works, drainage works, agricultural roads etc.) amounts to 876 mn. drach., or 5.8% of total construction.

No cost data for this type of construction were available. Inputs were estimated from average engineering coeffi-

cients of investments included in paragraphs (2), (4) and (5). The assumption underlying this estimate seems plausible, taking into account the similarity of works under "other agricultural construction" and those included in the above mentioned paragraphs.

4. Water and Sewage Works.

Analytical cost data were collected for works of 388 mn. drachmae, or 70% of total value of water and sewage works. The coefficients of this sample have been subsequently applied for the estimation of the total inputs for these investments.

5. Road Construction.

The total value of roads constructed in 1960 amounts to 1,713 mn. drachmae. A sample of roads of a value of 419 mn. drachmae was taken from the records of the Ministry of Public Works. Average input coefficients from this sample have been applied to the estimation of total interindustry purchases for road construction.

6. Construction Activity by Public Corporations.

The total value of investments by the Public Power Corporation (A.E.H.) and the Communications Public Corporation (O.T.E.) amounts to 535 mn. drachmae. The purchases from other sectors have been estimated from information collected directly from the above corporations. However, the cost accounting system of these corporations was not very helpful for the an-

alytical cost breakdown required for the Input-Output Table. Thus the estimates of inputs of these works are very rough.

7. Other construction.

The value of works under this heading amounts to 589 mn. drachmae. Other construction includes various works by the State Railways, Olympic Airways, Public Administration etc.. No data were available concerning the purchases for the generation of these investments. Average input coefficients have been estimated for all the above construction sectors (excluding housing construction), and have been applied for the estimation of the input-output flows of this category of works.

8. Maintenance.

This includes 1,200 mn.drach. for road maintenance and 476 mn. for manufacturing building maintenance and repairs. The first estimate was provided by the Transportation Section of KEPE, the second was derived from information provided by private firms. The cost of both types of repairs has been estimated from engineering coefficients gathered by the above-mentioned team of civil engineers.

Summing up the above discussion we may say that the input flows have been estimated with a satisfactory degree of approximation for works of a value of 11,426, out of a total of 15,102 mn. drachmae, the latter figure representing the total output of the construction sector.

VII. TRADE

The study was carried out separately for the wholesale and for the retail trade.

G r o s s O u t p u t .

The value of the output of the "Trade sector is measured by the gross margin on the goods handled through trade channels. It does not include the cost of goods sold by merchants.

The wholesale trade margin was estimated by two independent methods.

First, we estimated from the production figures the proportion of each sector's output handled through trade. For each sector, a separate trade margin was estimated from information collected : a) from several marketing studies of K.E.P.E. b) from Accounting Offices and c) from distributing outlets of the biggest manufacturing firms. The above procedure gave the figures included in table 5.

The average gross margin of the wholesale trade amounts to 12%.

Second. The wholesale trade margin was estimated as the difference between the total value of the wholesale turnover as reported by the Chamber of Commerce (Economic Situation of the Athens area, 1961), and the value of the commodities as estimated from production figures given in table.5.

Table 5. Wholesale Trade Margin Data

Sectors	Total Output (mn. drach.)	Output Handled through Trade (mn. drach.)	% Margin	Trade Margin (mn. drach.)
1. Agriculture	22,121	6,600	30%	1,981
2. Livestock	4,561	3,400	14%	482
3. Manufacturing	108,224	44,600	9%	3,950
4. Forestry	2,667	750	30%	225
5. Mining-Quarrying	2,186	500	10%	50
6. Fishing	1,386	1,112	10%	111
7. Commodity Imports	20,126	10,000	15%	1,500
T O T A L	161,275	66,962	12%	8,000

Table 6. Household Expenditure and Retail Trade Margin data

Expenditure Groups	Household Expenditure (mn. dr.)	Average Profit Rates	Retail Trade Margin (mn. dr.)
1. Tobacco	2,976	10%	298
2. Fruit-Vegetables	2,174	40%-30%	652
3. Groceries and Livestock Products	11,919	15%	1,788
4. Clothing	11,915	20%	2,383
5. Other commodities	27,573	18%	4,862
T O T A L	56,557	17.6%	9,983

Thus we got :

Wholesale Trade Turnover	75,000 mn. dr...
Value of commodities at producers' price	<u>66,960</u> " "
Wholesale Margin	<u>8,040</u> " "

The two estimates come very close.

The retail trade margin was estimated by applying various percentage gross-profit rates on the expenditure figures of households. In particular we grouped private expenditure into six categories, as shown in Table 6. For each category we estimated an average gross-profit rate from the following sources :

- 1) Marketing studies for fruit and vegetables carried out by KE.P.E.
- 2) Published data of the National Statistical Service on wholesale and retail prices of various commodities.
- 3) The taxation law provisions for cigarette consumption.
- 4) Information of Accounting Offices.

The above estimates gave the results of Table 6.

The average gross profit margin of the retail trade is 17.6%.

From tables 5 and 6 we find that the total gross margin of the "Trade" Sector amounts to 17,983 mn. drachmae.

I n p u t s

The cost of goods and services bought by the sector "Trade" from other sectors was estimated from a sample of wholesale and retail shops. This was made available through Accounting Offices. From the sample we computed average input coefficients per shop, which were subsequently multiplied by the total number of retail and wholesale shops. A separate estimate of the "labour input" was carried out on the basis of total number of paid employees, estimated from published data of the National Statistical Service and the Chamber of Commerce.

To check the above procedure we estimated "net profit" per trader in the wholesale and retail trades. This was found from "Other Value Added" by subtracting rents, depreciation and interest payments, estimated from various sources. From this estimate it was found that the yearly net profit per trader amounts to 120,000 dr. for the wholesale trade and to 30,000 dr. for the retail trade. These figures seem reasonable given the structure of the trade sector.

The allocation of the "output" of the "Trade" sector to the other sectors did not present serious difficulties given the procedure we adopted in estimating this output. In other words, we had already average gross margin rates for the commodities of each sector, from which the total value of the sectors' input from "Trade" was easily computed.

VIII. BANKING-INSURANCE

1. Banking.

The output as well as the expenses of the banking sector were derived from questionnaires filled out by the Banks as well as from their annual reports.

2. Insurance.

The output of insurance companies was taken from the annual survey of insurance companies of the Ministry of Commerce, published in the Government gazette.

The inputs were computed from a sample of insurance companies which provided detailed information on their expenses. The expenses were related to the turnover of these companies and the relative coefficients were subsequently used to derive the total interindustry flows from the total output of the insurance sector.

IX. HOUSING

The output of this sector was derived from the family budgets of 1958 (for urban households) and 1963 (for semi-urban and rural households). Figures have been adjusted to take into account the changes in rents and the number of households in 1960.

The inputs, concerning house maintenance expenses, were

estimated from engineering coefficients, estimated by the team of engineers who conducted the study of "Construction".

X. TRANSPORTATION AND STORAGE

This sector has been divided into the following sub-sectors.

	<u>Output</u>
1) Shipping	1,469 mn. dr.
2) Railways	537 " "
3) Buses	2,048 " "
4) Taxis	1,029 " "
5) Electric Railways & Trolley Buses	282 " "
6) Road haulage	2,396 " "
7) Civil Aviation	511 " "
8) Storage	160 " "
T O T A L	<u>8,432 " "</u>

The preparation of the column and the row for this sector required considerable work, because information concerning the transport services is very limited. We give the general description of the estimates of input and output in the various sub-branches.

A. SHIPPING

Separate studies have been carried out for : 1) Passenger ships, 2) Cargo ships and 3) Other ships (ferry-boats,

tug-boats and rescuer-boats).

1) Passenger ships

The output has been estimated separately for:

a) Coastal Liners : 289 mn. dr.

This estimate was based on the official rates between ports and the number of passengers disembarked in each port.

b) Mediterranean Liners : 271 mn. dr.

The estimate was based on a sample of firms, from which we estimated average earnings and expense per ship. These averages were multiplied by the number of ships characterised as "mediterranean liners".

c) Transatlantic Liners : 202 mn. dr.

The estimate of inputs and output was based on a sample of firms, which was expanded to cover the whole sub-branch of "transatlantic liners".

d) Small ships : 15 mn. dr.

The estimate is based on a sample of shipping companies.

The inputs have been estimated from samples of ships for each of the above types.

The output of passenger ships has been allocated to the final demand.

2) Cargo Ships

The output (579 mn. dr.) has been estimated by multiplying the total quantity of commodities transported by ship by an average cost-rate per ton per mile.

The quantity of commodities transported is published by the National Statistical Service of Greece (3,023,770 tons).

The average rate per ton per mile has been estimated as follows:

First, we estimated an average rate 0.3308 dr. per ton per mile from the official rates of the Ministry of Merchant Marine.

Second, we estimated the average distance to which each ton has been transported (187 miles) from data of K.E.P.E. concerning the loaded (and unloaded) commodities from the main ports and their destination.

Third, we estimated an average stowage coefficient (1.64) from the analytical coefficients of the Ministry of Merchant Marine, weighted by the quantity of products transported.

Thus, total cost per mile is $0.3308 \times 1.64 = 0.543$ drach.

The total output of cargo ships is $3,023,770 \times 187 \times 0.543 = 309$ mn.dr. .

The inputs have been estimated from a sample of shipping companies.

The allocation of output to the various sectors has been

based on the breakdown of the total quantity of goods transported by sector, on information of commodities loaded in the main ports of Greece.

The above deals with commodities transported between Greek ports. For goods transported between Greek and foreign ports a separate estimate has been attempted. From information of various sources the quantity of goods transported between Greek and foreign ports amounts to approximately 1 mn. tons. The average cost per ton per mile was estimated at 270 dr. from a sample of shipping companies.

The output from transportation of goods between Greek and foreign ports has been considered as export of transportation services.

3) Other ships.

The output and inputs of ferry boats as well as of tug-boats and rescuers have been estimated from a sample of shipping companies.

The output of ferry boats (58 mn. dr.) was partly allocated to the final demand (40% of the total output is derived from transportation of passengers) and was partly considered as an intra-industry input (being mainly derived from transportation of trucks).

The output of tug-boats and rescuers (56 mn. dr.) has been considered as an intra-industry flow.

It should be noted that the transportation services rendered by ships under Greek flag to foreign countries have not been taken into consideration, because these ships move always between foreign ports. The salaries of Greek sailors serving on these ships and the profits of shipowners sent to Greece were taken into account as an export of "personal services" of the "Other Services" sector.

B. RAILWAYS

The output and inputs of the railway sector have been estimated from data provided by the Hellenic State Railways.

The State Railways are subsidised by the Government. Part of the subsidy is used to cover the deficit of current running expenses, but the greatest part is used to cover investment projects and pensions of retired personnel. Only the amount of the total subsidy required to cover the deficit of the running expenses was taken into account in computing the inputs of the Railways sector.

The output was allocated to the final demand (the part concerning the transportation of passengers) and to the other sectors on the basis of analytical information of the commodities transported provided by the Hellenic State Railways.

C. BUSES

Buses have been divided into three categories:

- a) Buses moving in towns (urban buses)
- b) Buses moving between towns and villages (inter-urban buses)
- c) Other buses (tourist buses, school buses etc.).

The output of the first two groups is reported in the Statistical Yearbook of Greece. The receipts of other buses were estimated from information of various sources (Travel Agencies, private schools, etc.).

The inputs per bus have been estimated from a combination of information of various committees which have been appointed at various times to study the cost of bus-enterprises.

The output of the first two categories of buses was allocated to final demand, while the output of the third category was allocated to the "Other Services" sector.

D. TAXIS

The estimate of inputs and turnover is based on a sample of questionnaires filled by taxi-owners. The estimate of inputs and gross revenue per taxi was multiplied by the number of taxis in the country.

The output of taxis was allocated to private consumption.

E. ELECTRIC SUBWAYS AND TROLLEY-BUSES

Electric subway trains are owned by a Greek company and

the trolley buses are operated by a British company. Inputs and the turnover were estimated from questionnaires filled by these companies.

The output was allocated to the private consumption.

F. ROAD HAULAGE

This sector includes the activities of all lorries in the private sector (government lorries and military vehicles are not included), including lorries owned by transport companies, or by firms, or by industrial enterprises etc..

There is no reliable estimate of road haulage output and inputs.

Average turnover and expenses per lorry were estimated from a small sample of lorry-owners and haulage companies. These data were checked and adjusted after consultation with the Ministry of Transport.

The averages were subsequently multiplied by the number of vehicles in the country.

The estimates for principal inputs such as tyres and fuel were checked, as far as possible, against data obtained independently from the production side and from import statistics.

The allocation of the output to the various sectors was based primarily on a commodity flow study conducted by the Ministry of Transport in 1960. This study gives an estimate of

the quantities of commodities transported by lorry divided into three big groups: a) foodstuffs, b) chemicals and other manufacturing products, and c) other commodities. The more analytical breakdown of these three groups to conform with the requirements of the 50-branch breakdown of the Input-Output Table was based on the percentage breakdown of the commodities carried by railways.

It should be noted that some double-counting may have occurred for certain inputs (like remuneration of drivers and fuel) for lorries owned by manufacturing firms, since these firms may not keep separate accounts for expenses generated by their own lorries.

G. CIVIL AVIATION

This sector includes the output and the expenses of Olympic Airways, the only Greek aviation company. Data were provided by the company, which filled a special questionnaire.

The output was allocated to the private consumption and to "exports" of transportation services.

H. STORAGE

There is no direct estimate of the output of this sector. Instead, we defined output as the sum of expenditures on storage by all sectors, for which separate estimates were available from the individual sectors.

Inputs were estimated from information provided by the State Warehouses, and by some privately-run storehouses.

XI. OTHER SERVICES

The output and input estimates for this sector are not reliable, because information on the income and the costs of "producers" is very scarce.

The "Service" sector is of great importance from the point of view of employment and value added. However, for input-output analysis it is of minor interest, because its purchases from other sectors are not important and most of the output is for private and government consumption. Therefore the limited accuracy of the input and output estimates of this sector mainly affects the "value added" figures, but is not expected to significantly influence the interindustry relationships of the Input-Output Table.

The "Service" sector was divided into the followings sub-sectors.

1) Hotels. 2) Health. 3) Education. 4) House-help (servants, doorkeepers, etc.). 5) Photographic Shops-Film companies. 6) Beauty-parlours, Hairdressers etc. 7) Laundries, Dry Cleaning Establishments. 8) Restaurants, Coffee-houses, Bars, Night Clubs, etc.. 9) Cinemas-Theaters. 10) Accounting Offices-Typing Offices, etc.. 11) Travel Agencies. 12) Architect-Civil

Engineering Firms . 13) Legal Firms . 14) Civil Service . 15)
Other Free Professions.

Various methods have been followed for the estimation of earnings and costs of different sub-sectors, depending on the availability of data.

The sector "Hotels" has been studied from a sample of hotels of all classes. Inputs and earnings were computed from the multiplication of sample coefficients by the number of hotels of each class.

"Education" and "Health" sectors include both private and Government agencies.

The gross output of the sectors was estimated from the consumption figures, from the number of employees in each sector, from income-tax-information etc..

The inputs were estimated in various ways, whose general reliability cannot be accurately assessed. In some branches inputs were estimated from a small sample of firms or offices. In other cases, we collected information from firms or Accounting Offices. In several cases inputs were derived from the output side.

FINAL DEMAND

Final demand has been divided into four groups:

- I) Private Consumption.
- II) Government Consumption.
- III) Fixed investment and changes in stocks.
- IV) Exports.

For each component of the final demand a separate study has been carried out.

I. Private Consumption.

The estimate of final demand was based on the published data of family budgets of the National Statistical Service.^{1/} The family budgets of the urban areas refer to 1957/58 while the budgets of the semi-urban and rural areas refer to 1963. Consequently we estimated separately the consumption expenditure of the urban and the rural and semi-urban population for the year 1960.

1. Consumption expenditure of urban households.

From the household survey of urban areas of the year 1957/58 we derived the average expenditure per household for that period. This figure has been adjusted: a) for price

^{1/} "Household Survey carried out in the urban areas of Greece during 1957/58", National Statistical Service, 1961.

"Household Survey carried out in the semi-urban and rural areas of Greece during 1963", National Statistical Service 1964.

changes between 1957/58 and 1960, and b) for changes in the household income.

The adjustment for price changes did not present serious difficulties. From various consumer-price indices it was estimated that prices to the consumer changed by 5.6% between the base period and 1960. Consequently, we inflated the 1957/58 household expenditure on goods and services by 5.6%.

The adjustment of household expenditure for changes in income was based on expenditure and income elasticities derived from an analytical cross-section demand analysis by K. Ke-
work^y and on regression analysis for the total expenditure as a function of disposable income, carried out by the Section of Econometric Analysis of the Center of Planning and Economic Research. The method applied is summarized below.

Expenditure on commodity i in 1960 is defined as the sum of expenditure on this commodity in the base period 1957/58 plus the change in expenditure due to change in disposable income between 1957/58 and 1960, i.e.

$$E_i(1960) = E_i(1957/58) + \Delta E_i(1960)$$

The change in expenditure $\Delta E_i(1960)$ is estimated as follows:

- a) Expenditure elasticity of commodity i with respect

^y K. Ke-
work, "Πρότυπον 'Αστικής Καταναλώσεως ἐν 'Ελλάδι",
ATHENS 1962

to total expenditure is defined by the formula:

$$\eta_{E_i E_o} = \frac{\Delta E_i / E_i}{\Delta E_o / E_o} \quad (1)$$

where $\eta_{E_i E_o}$ = expenditure elasticity of commodity i with respect to total expenditure.

$\Delta E_i / E_i$ = percentage change in expenditure on commodity i.

$\Delta E_o / E_o$ = percentage change in total expenditure.

b) Total expenditure elasticity with respect total income is defined as

$$\eta_{E_o Y} = \frac{\Delta E_o / E_o}{\Delta Y / Y} \quad (2)$$

where $\eta_{E_o Y}$ = elasticity of total expenditure with respect to total disposable income.

$\Delta Y / Y$ = percentage change in total disposable income.

Combining (1) and (2) we get the elasticity of expenditure of commodity i with respect to total income:

$$\left[\eta_{E_i Y} \right] = \left[\eta_{E_i E_o} \right] \cdot \left[\eta_{E_o Y} \right]$$

The elasticity of expenditure on i with respect to total expenditure was taken from the above-mentioned study of the demand of urban households by K. Kevork.

The elasticity of total expenditure with respect to total income was estimated from the following regression:

$$E_o = b_o + b_1 Y + u$$

The estimation covered the period 1951-1964 and gave the following results:

$$E_o = 8.93 + 0.79 Y \quad R^2 = 0.766$$

(0.04)

From $b_1 = 0.79$ we estimated an average income elasticity of expenditure

$$\eta_{E_o Y} = 0.82$$

From the National Accounts we estimated the percentage change in disposable income ($\Delta Y/Y = 0.069$).

On the basis of the above information we estimated the percentage change in expenditure on commodity i as follows:

$$\left[\frac{\Delta E_i}{E_i} \right] = \left[\eta_{E_i E_o} \right] : \left[\eta_{E_o Y} \right] \cdot \left[\frac{\Delta Y}{Y} \right]$$

The average household expenditure for 1960 was expanded to apply to the total number of urban households in that year which were estimated at 954,764.

2. Consumption expenditure of semi-urban and rural households.

From the survey of semi-urban and rural households of 1963 we got information on expenditure by commodity for that year. This average expenditure has been adjusted for price changes between 1963 and 1960, i.e. we deflated by an index of 0.957 which was estimated from the cost of living index between 1963 (106.9) and 1960 (102.3). An adjustment for changes

in the pattern of expenditure due to changes in income has been attempted, based on estimates of income elasticities. These were computed from the income elasticities of the urban areas and total income elasticities derived from Prof. Suits' Econometric model of the Greek economy. For particular commodities an adjustment was done on the basis of information on self-consumption provided by the Ministry of Agriculture.

The average expenditure per household was expanded to the total number of rural and semi-urban household which was estimated at 1,190,112 for 1960.

The figures for total private expenditure derived from the above study differ considerably from the National Accounts estimates of private consumption, as can be seen from the figures of Table 7.

Table 7. Private Consumption (current prices, mn. dr.).

		National Accounts	Input Output	Difference
1	Food and Beverage	36,711	37,071	+ 360
2	Tobacco	2,872	2,802	- 70
3	Housing and Water	10,671	10,206	- 465
4	Fuel and light	2,447	3,533	+1,086
5	Clothing-Footwear-Furniture			
	Household expenses	15,295	19,224	+3,929
6	Health, Soap, Cosmetics etc.	3,155	3,435	280
7	Services	12,151	17,951	+5,800
	T O T A L	83,302	94,222	+10,920

The private consumption of our estimates amounts to 94,000 mn. drach., as compared with 83,000 mn. drach. of the National Accounts. The difference cannot be completely accounted for, since the methodology of the National Accounts is not known in detail. The greatest differences are found in the following

items:

1) Fuel and light. The input-output estimates give a figure higher by 1,100 mn. drach., which might be attributed to our taking into account the value of wood collected freely from forests or from other tree cultivations.

2) Clothing, footwear, furniture, household expenses. The input-output estimate is higher by 4,000 mn. drach., as compared with the National Accounts figure. The difference may be explained by the following: a) We include in this sector the value of services of shoerepairing and dressmaking. b) Our wholesale and retail trade margins are higher than the margins adopted by the National Accounts Division for most of the items in this group.

3) Services. Our estimate is higher by approximately 5,800 mn. drach.. This difference cannot be accounted for unless the National Accounts methodology is published in detail.

II. Government Consumption.

Government consumption includes the expenditure of a) the Central Government, b) the Local Authorities and c) the National Institutions (National Tobacco Board, National Cotton Board, National Insurance Organizations etc.).

Data for the expenditure of the Central Government were available from the yearly published budget^{1/} of the Government. This includes analytical information of expenditure by item and Government Department. For some items, which were lumped together under the same account, we obtained from the Ministry of Finance an average percentage composition by type of expenditure.

^{1/} "Government Budget 1961", Ministry of Finance.

Data for the expenditure of the National Institutions were taken from published information^{2/} of the Ministry of Finance. Expenditures were given in broad aggregates, which were classified by category on the basis of percentages, estimated from the relative items of expenditure of the Central Government.

Finally the expenditure of Local Authorities was taken from the Ministry of Finance and the National Accounts. The breakdown of purchases was carried out on the basis of additional information from the financial reports of the Local Authorities.

Input-Output estimates of Government expenditures do not differ substantially from the figures given in the National Accounts, as can be seen from the following Table 8.

Table 8. Government Consumption, 1960. (mn. drach.)

	National Accounts	Input-Output Estimate	Difference
Wages & Salaries	8,731	9,310	+ 579
Goods and Services	3,525	3,215	- 310
T O T A L	12,256	12,525	+ 269

2/ "Financial Statements of National Institutions, 1960", Ministry of Finance.

III. Fixed Investment & Changes in Stocks.

Fixed investment includes machinery, working tools, transport equipment and the whole output of the construction sector, maintenance expenses excluding those of buildings, which are defined as a current input.

The invested part of the output of each sector was estimated from the following sources:

- 1) From the production side, i.e. from the analytical study of the commodities produced by each sector, carried out by the Center of Planning and Economic Research.
- 2) From import statistics by commodity.
- 3) From published and unpublished information of the National Accounts.
- 4) From estimates of the investment realized in various branches (investment in agricultural machinery from the Ministry of Agriculture, investment in manufacturing industry from the National Statistical Service, etc.).

It should be noted that for many commodities and in particular for machine parts (domestically produced or imported) the decision whether to include them as a current input in the interindustry flows or to allocate them to investment, was based on information from firms, mechanical engineers and, in some cases,

on arbitrary judgement.

Installation expenses are considered as output of the "construction" sector and are allocated to investment from this sector. Given that installation is sometimes carried out by the investor's permanent workers, it is possible that the procedure followed may have caused a certain amount of double-counting.

Table 9. Investment by Producing sector, 1960 (mn. drach.)

Type of investment	National Accounts	Input-Output Estimates	Difference mn. dr. %
1. Housing construction	5,445	5,624	+ 179
2. Other building construction	2,941	2,941	-
3. Other construction	5,475*	4,861	- 614
4. Transport Equipment	1,286	1,133	- 153
5. Machinery and other Equipment	3,102	3,362**	+ 260
6. Changes in Stocks	- 996	869	+1,865
7. Livestock	95	268	+ 173
T O T A L	17,348	19,058	+1,710 9.9%

Changes in stocks were known only for the main agricultural products (wheat, tobacco, olive-oil and currants). For the other sectors changes in stocks were estimated from the residual between output and purchases of this output by all

* Not including transfers of ships under Greek flag.

** Including 507 mn. dr. representing machinery installation expenses.

types of users and from information of changes in stocks of the sample of firms of the manufacturing industry.

Table 9 includes the figures of investment of the National Accounts and of our own estimates.

Given the different aggregation of the National Accounts, only the overall figures of investment can be meaningfully compared.

IV. Exports.

Export data were taken from the Trade Yearbook of Greece. The exports of the various commodities were classified according to the Input-Output sectoral breakdown.

The value of commodity exports are estimated at F.O.B. prices, which included trade margins of the exporters.

RELATION TO NATIONAL ACCOUNTS ESTIMATES

Table 10 shows the Gross Value Added figures of the Input-Output Table as well as the Gross National Income figures of the National Accounts of Greece for 1960. The sectors of the Input-Output Table have been aggregated so as to become comparable with the National Accounts sectoral breakdown.

There is an overall difference of 15.7% between the Input-Output income estimates and the National Accounts figures. A sector-by-sector comparison reveals the following:

- 1) The difference for the following sectors is negligible
 - a) Agriculture-Livestock (2.5%)
 - b) Housing (1%)
 - c) Construction (-6.3%)
 - d) Banking-insurance (-3%)
- 2) The higher figure of the Input-Output Table for the "Forestry" sector (the difference amounts to 859 million dr.) is due to the fact that we included in the output of the sector an estimate of the value of firewood gathered by the villagers.
- 3) The higher estimate of the Input-Output Table for the "Mining-Quarrying" sector may be attributed to our estimating as part of the output of the sector the value of stones ac-

Table 10: Differences between the "Value Added" estimates of the National Accounts and the Input-Output Table.

(mn. dr.)

	National Accounts	Input Output	Difference	
			1000 drs	%
<u>Agriculture-Livestock</u>	20,949	21,469	520	2.5%
<u>Forestry</u>	1,163	2,022	859	73.9%
<u>Fishing</u>	641	539	-102	-15.9%
<u>Mining</u>	1,055	1,405	350	33.2%
<u>Total Industry</u>	15,683	21,434	5,751	36.7%
Food-Beverage-Tobacco	3,791	5,003	1,212	32.0%
Textiles	2,577	3,068	491	19.0%
Clothing-Footwear	2,233	2,449	266	9.7%
Wood-Furniture	927	1,595	668	72.1%
Paper-Printing	724	909	185	25.6%
Chemicals	1,376	3,440	2,064	150.0%
Building Materials	916	888	-28	-3.1%
Basic Metals	276	335	59	21.4%
Machinery (35+36+37)	1,923	2,377	454	23.6%
Transport Equipment	490	698	208	42.5%
Other Industry (29+30+39)	450	672	222	49.3%
<u>Electricity-Gas-Water</u>	1,350	2,083	733	54.3%
<u>Construction</u>	6,379	5,980	-399	-6.3%
<u>Transport-Storage</u>	5,553	4,624	-929	16.7%
<u>Communications</u>	879	1,117	238	27.1%
<u>Trade</u>	10,329	13,415	3,086	29.9%
<u>Banking-Insurance</u>	1,995	1,935	-60	-3.0%
<u>Housing</u>	9,598	9,695	97	1.0%
<u>Other Services</u>	18,905	23,627	4,722	25.0%
TOTAL VALUE ADDED	94,479	109,345	14,866	15.7%

quired on the spot in road construction, while the National Accounts include in their figures the value added by organized quarrying activities only.

4) The difference in the "Electricity-Gas-Water" sector, amounting to 733 mn.drach., is attributed to the inclusion of water consumption of semi-urban and rural areas in the output of the sector.

5) For the "Transport-Storage" sector; the National Accounts' income figure is higher by approximately 1,000 mn.drach. This might be attributed:

- a) to the inclusion of sailors' and shipowners' remittances
- b) to the inclusion of all subsidies to the Railways as part of the output.

6) The difference in the value added of the "Communications" sector cannot be accounted for.

7) The difference in the trade sector is considerable (3,000 mn. dr. or 30%). It is due mainly to the fact that the National Accounts make their estimates on the basis of the State-determined trade margins. However, some studies by K.E.-P.E. and information from private firms (through Accountants' Offices) prove that the trade margins are considerably higher than any official information would lead one to believe. We based our estimate on ~~this~~ information.

8) The greatest difference is in the "Other Services" sector (4,700 mn. dr.) and cannot be checked, since both the National Accounts and we have largely worked on the basis of assumptions. Nevertheless, we believe that our estimate is more realistic because:

- a) We had access to information from private firms.
- b) We had a sample for most of the subsectors of this branch.

However, unless the National Accounts disclose their methodology in detail, no answer could be definitely given as to what estimate is more reliable.

9) The difference of 5,500 mn. dr. in manufacturing industry is mainly due to the food industries, chemical industries and textiles. It seems that there is an underestimation of the "other value added" figure by the National Accounts.

Table 11 contains income figures of the Input-Output Table and the National Accounts, split into "Wages", "Agricultural Income" and "Other Value Added".

Table 11. Income by source. (1,000 drach.)

	National Accounts	Input-Output	Difference	
			1,000 dr.	%
1. Agricultural Income	22,500,000	24,000,000	+ 1,500,000	6.7
2. Wages	32,000,000	34,400,000	+ 2,400,000	7.5
3. Other Value Added	40,000,000	51,000,000	+11,000,000	27.5
T O T A L	94,500,000	109,400,000	14,900,000	15.8%

Table 11 shows that the main differences between the Input Output estimates and the National Accounts are mainly attributed to "other value added" which includes:

- a) depreciation
- b) rents
- c) interest payments.

Since the National Accounts base their estimates on the income from the above sources and on an independent estimate of depreciation, the causes of differences may be of a great variety (underestimation of depreciation, profits etc.).

Table 1: Correspondence between the sector classification of the Input-Output table and of the National Statistical Service.

INPUT-OUTPUT SECTOR CLASSIFICATION			STANDARD CLASSIFICATION OF ECONOMIC BRANCHES, NATIONAL STATISTICAL SERVICE	
a/a	Code Number	SECTOR	Code Number	S E C T O R
1	01.1	Industrial Crops		Tobacco, Cotton, Sugar-beets.
2	01.2	Wheat and other Cereals	011.10	Wheat and other Cereals.
3	01.3	Fruit Trees	011.12	Fruit Trees.
4	01.4	Olive Groves	011.13	Olive Trees.
5	01.5	Vineyards	011.14	Grapes and Raisins.
			011.15	Vegetables.
6	01.6	Vegetables	011.16	Flowers.
7	02	Livestock	011.20	Livestock in general.
8	03	Forestry-Hunting	02	Exploitation of Forests.
9	04	Fishing	03	Hunting.
10	1	Mining-Quarrying	04	Fishing.
11	20.1	Slaughtering of Animals	1	Mining and Quarrying.
			201	Slaughtering of Animals. Prepara-
				tion and Preservation of Meat.
12	20.2	Milk Industry-Tinned Food	202	Milk Industry.
			203	Fruit, Vegetables and Olives,
				Tinned food.
			204	Salted goods and, in general,
				Preserved Fish.

Table : 1 : Continued

a/a	Code Number	SECTOR	Code Number	SECTOR
13	20.3	Flour, Bread, Sugar, etc.	205	Crops Industry.
			206	Bread-making. Confectionery.
			207	Sugar Industry.
			208	Chocolate Industry.
			209	Miscellaneous Food Industries.
14	21	Beverage Industry	21	Beverage Industry.
15	22.1	Tobacco Leaf Processing	220.1	Tobacco-Leaf Processing.
16	22.2	Tobacco Manufactures	220.2	Tobacco Manufactures.
17	23.1	Cotton Industry	231.1	Cotton Industry.
18	23.2	Wool Industry	231.2	Wool Industry.
19	23.3	Knitting	232	Knitting.
			231.3	Silk Industry.
			231.4	Processing of Jute, Flax, Hemp.
20	23.4	Other Textile Industry	231.6	Lace-making and Band Knitting.
			231.7	Dyeing Establishments. Thread and Cloth Finishing Factories.
			233	Rope and String Industry.
21	24.1	Footwear	239	Miscellaneous Textile Industry.
			241	Footwear.
			242	Shoe Repairs.
22	24.2	Clothing, etc.	243	Clothing Industry (excluding footwear).
			244	Manufacture of Different Cloth Goods (excluding clothing).

Table : 1 : Continued

a/a	Code Number	SECTOR	Code Number	S E C T O R
23	25	Wood and Cork	25	Wood and Cork Industry (excluding furniture).
24	26	Furniture	26	Furniture Industry and Fixtures.
25	27	Paper and Paper Products	27	Paper and Paper Products.
26	28	Printing and Publishing	28	Printing and Publishing.
27	29	Leather Industry	29	Leather and Fur Industry.
28	30	Rubber Industry	30	Rubber Industry.
29	31.1	Fertilizers-Inorganic Chemicals	31.1	Fertilizers, Acids.
			31.20	Paints and Intermediate Products
			31.3	Explosive Materials and Fireworks.
			31.4	Synthetic Fibres.
30	31.2	Organic Chemicals, Soap, etc.	31.9	Other Basic Chemical Industries
31	31.3	Olive Oil-Seed Oils-Fats	313	Oil Paints, Varnishes.
			319	Miscellaneous Chemical Industries,
			312	Olive Oil, Seed Oils-Fats.
32	32	Oil Refinery-Coal Derivatives	32	Oil and Coal Derivatives Industry.
33	33.1	Marble, Glass, Bricks, etc.	331	Manufacture of Building Mate-

Table : 1 : Continued

a/a	Code Number	SECTOR	Code Number	S E C T O R
				rials from Clay. Glass Industry. Manufacture of Clay, Porcelain and Faience Goods. Lime making. Gypsum Processing and Manufac- ture of Putty and Marble-dust Products. Manufacture of Products from Gypsum. Processing of Emery and Manufac- ture of Abrasive Media. Manufacture of Asbestos Goods Production and Processing of Sulphur. Other Non-metallic Minerals In- dustries. Cement. Cement Products Basic Metal Industries. Metal Products (excluding ma- chinery and transport equipment). Non-Electrical Machinery and Appliances.
			332	
			333	
			339.10	
			339.2	
			339.30	
			339.6	
			339.70	
			339.80	
			339.90	
34	33.2	Cement and Cement Products	33.4	
			339.4	
35	34	Basic Metal Industries	34	
36	35	Metal Products	35	
37	36	Machinery	36	

Table : 1 : Continued

a/a	Code Number	SECTOR	Code Number	S E C T O R
38	37	Electrical Machinery	37	Electrical Machinery and Appli- ances.
39	38.1	Shipyards	381	Ship-building and Ship Repairs.
40	38.2	Transport Equipment	382	Manufacture of Railway Material.
			383	Automobile Industry.
			384	" Repairs.
			385	Motorcycles and Bicycles.
			386	Airplane Industry.
			389	Miscellaneous Transport Equip- ment Industries.
41	39	Miscellaneous Industries	39	Miscellaneous Industries.
42	40	Construction	40	Construction and Public Works.
43	51	Electricity	511	Electricity.
44		Gas-Water	512	Gas.
			521	Water.
45		Banking-Insurance	62	Banking and Other Financial In- stitutions.
46		Communications	63	Insurance.
			73	Communications.
47		Transportation-Storage	71	Transportation.
			72	Storage.
48		Trade	61	Wholesale and Retail Trade.
			64	Real Estate.
49		Other Services	821	Education.
			822	Medical and Sanitation Services.
			83	Business Services.

Table 1 : Continued

a/a	Code Number	SECTOR	Code Number	S E C T O R
50		Housing	84 85	Recreation Services. Personal Services.

By A. KOUTSOYIANNIS in association with A. GANAS assisted by a team of Experts and Research Assistants.

INVERSE TABLE OF COEFFICIENTS

Year 1960

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
		01.1	01.2	01.3	01.4	01.5	01.6	0.2	0.3	0.4	1	20.1	20.2	20.3	21	22.1	22.2	23.1	23.2	23.3	23.4	24.1	24.2	25	26	27	28	29	30	31.1	31.2	31.3	32	33.1	33.2	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50					
S E C T O R S		Industrial Crops	wheat and other Cereals	Fruit Trees	Olive Groves	Vineyards	Vegetables	Livestock	Forestry-Hunting	Fishing	Mining-Quarrying	Slaughtering of Animals	Milk Industry-Tinned Food	Flour, Bread, Sugar etc.	Beverage Industries	Tobacco Leaf Processing	Tobacco Manufacture	Cotton Industry	Wool Industry	Knitting	Other Textile Industry	Footwear	Clothing etc.	Wood and Cork	Furniture	Paper and Paper Products	Printing and Publishing	Leather Industry	Rubber Industry	Fertilizers-Inorganic Chemicals	Organic Chemicals, Soap etc.	Olive Oil - Seed Oils - Fats	Oil Refinery-Coal derivatives	Breaks-Table-Glass etc.	Cement and Products	Metal Industries	Metal Products	Machinery	Electrical Machinery	Shipyards	Transport Equipment	Miscellaneous Industries	Construction	Electricity	Gas-Water	Banking - Insurance	Communications	Transportation-Storing	Trade	Other Services	Housing	S E C T O R S					
1	01.1 Industrial Crops	1.021900	.000974	.001099	.001873	.001215	.002552	.003352	.001142	.003356	.000796	.002520	.009544	.055102	.005462	.076530	.066143	.013980	.014596	.003699	.060488	.009502	.092908	.006095	.002728	.001279	.001893	.004361	.003332	.001326	.008040	.008045	.001092	.000909	.001642	.000988	.001152	.000719	.001026	.009911	.001352	.003619	.001324	.002026	.000273	.000095	.000098	.002816	.001528	.002393	.000087	Industrial Crops	01.1	1			
2	01.2 Wheat and other Cereals	.050163	1.190200	.087460	.093149	.084768	.185520	.079770	.026943	.004599	.001556	.021840	.180440	.441300	.187300	.093102	.005302	.020173	.022988	.010420	.014831	.005975	.010566	.010218	.005260	.004713	.002998	.121880	.009116	.002239	.008296	.009628	.002863	.002776	.002902	.002087	.002385	.002032	.002488	.001975	.002439	.005102	.003599	.000550	.000592	.000387	.000307	.004582	.007046	.002062	.000257	Wheat and other Cereals	01.2	2			
33	01.3 Fruit Trees	.001050	.000523	1.019500	.001770	.001748	.000713	.007078	.000616	.000401	.002791	.004239	.009529	.006657	.001741	.000971	.000221	.000543	.000655	.000405	.000993	.000469	.000411	.000393	.000702	.000377	.002542	.000518	.000486	.000470	.000399	.000350	.000366	.000381	.000404	.000361	.000343	.000350	.000388	.000276	.000464	.000572	.000123	.000115	.000131	.000068	.001548	.000705	.002623	.000049	Fruit Trees	01.3	3				
4	01.4 Olive Groves	.003213	.004692	.002561	1.006000	.006129	.001596	.002924	.001770	.000747	.000497	.001297	.002956	.000869	.005543	.001967	.000394	.003903	.004456	.004584	.000706	.000653	.001473	.000790	.000919	.001008	.001427	.001249	.001362	.002348	.002348	.000394	.000332	.000345	.000412	.000384	.000391	.000772	.000643	.000696	.000360	.000675	.000106	.000387	.000094	.000517	.000389	.002280	.000093	Olive Groves	01.4	4					
5	01.5 Vineyards	.002421	.003594	.004335	.004303	1.004200	.008865	.001748	.001340	.000390	.000306	.001095	.160100	.002741	.331980	.001646	.000334	.001043	.001125	.000713	.000876	.001888	.000670	.000637	.001326	.000714	.000425	.005855	.000691	.000492	.001477	.002265	.000527	.000354	.000599	.000397	.000361	.000344	.000364	.000414	.000639	.000586	.000600	.000120	.000127	.000101	.000068	.001460	.000660	.006119	.000051	Vineyards	01.5	5			
6	01.6 Vegetables	.000630	.000912	.001361	.001018	.001021	1.067800	.003919	.000431	.000531	.000397	.002778	.112730	.002592	.000893	.000098	.000238	.000449	.000581	.000423	.000476	.000988	.000531	.000423	.000452	.001011	.000531	.001673	.000628	.000671	.000538	.000982	.000600	.000462	.000673	.000454	.000469	.000427	.000468	.000534	.000356	.000627	.000783	.000147	.000136	.000150	.000082	.001436	.000983	.000604	.000071	Vegetables	01.6	6			
7	0.2 Livestock	.142789	.219470	.252320	.266310	.200860	.545780	1.099800	.077427	.003589	.001798	.617830	.529290	.079715	.120630	.084610	.013208	.049746	.046305	.008793	.035315	.045404	.022422	.028944	.008799	.004531	.000423	.348250	.019708	.008929	.014517	.103250	.002568	.002147	.002841	.002153	.002579	.002315	.002348	.002500	.002403	.005200	.005977	.000562	.000798	.000447	.000471	.000886	.004186	.002143	.000384	Livestock	0.2	7			
8	0.3 Forestry-Hunting	.001352	.001231	.004971	.004458	.006901	.000701	.002027	1.001200	.003549	.001295	.002948	.008205	.007809	.005416	.002924	.001560	.003448	.005327	.000946	.004515	.000863	.004095	.311460	.074475	.014771	.000616	.013820	.005503	.000704	.002378	.002180	.002264	.000766	.002320	.002894	.003948	.002826	.000386	.006641	.005427	.010654	.003088	.000481	.002411	.000322	.002871	.001898	.005442	.001301	.002269	Forestry-Hunting	0.3	8			
9	0.4 Fishing	.000707	.000080	.000306	.000056	.000076	.000205	.000079	.000105	1.000400	.000132	.000248	.006843	.000293	.000232	.000291	.000167	.000188	.000276	.000292	.000251	.000534	.000607	.000209	.000275	.000390	.000390	.000374	.000391	.000290	.000345	.000224	.000298	.000290	.000226	.000222	.000273	.000230	.000329	.000305	.000242	.017376	.000436	.000078	.000088	.000105	.000066	.000115	.000698	.005642	.000041	Fishing	0.4	9			
10	1 Mining-Quarrying	.001823	.003553	.002163	.004881	.002767	.001891	.001355	.000628	.008262	1.006500	.003505	.008279	.001778	.001670	.001312	.004902	.004512	.008315	.002691	.007167	.010784	.012742	.002771	.002968	.000312	.002944	.003230	.005990	.000268	.002748	.002335	.002190	.008797	.191270	.007280	.002087	.002716	.002504	.002881	.001098	.001935	.002070	.126890	.004809	.002907	.004838	.074051	.005881	.004344	.004099	Mining-Quarrying	1	10			
11	20.1 Slaughtering of Animals	.000099	.000453	.000930	.000518	.000379	.000849	.000892	.000401	.000720	.000936	1.046600	.000835	.000688	.000621	.000723	.000381	.000470	.000654	.000629	.000573	.006808	.000337	.000599	.000637	.001329	.000642	.000325	.000438	.000404	.000469	.000514	.000839	.000752	.000355	.000560	.000391	.000347	.000390	.000276	.000253	.000541	.000119	.000112	.000094	.000050	.000191	.000086	.000047	Slaughtering of Animals	20.1	11					
12	20.2 Milk Industry - Tinned Food	.000125	.000173	.000529	.000134	.000147	.000357	.000319	.000141	.000093	.000378	1.002300	.000630	.000440	.000526	.000353	.000141	.000251	.000396	.000305	.000294	.000454	.000339	.000293	.000310	.000682	.000325	.000395	.000404	.000469	.000514	.000839	.000752	.000355	.000560	.000391	.000347	.000390	.000276	.000253	.000541	.000119	.000112	.000094	.000050	.000191	.000086	.000047	Milk Industry - Tinned Food	20.2	12						
13	20.3 Flour, Bread, Sugar etc.	.000758	.000884	.001699	.011042	.011337	.002664	.004269	.005484	.010730	.002740	.001067	.002520	1.321900	.056101	.007927	.003100	.012522	.025049	.011265	.010364	.015075	.010188	.005475	.006261	.009743	.002697	.008289	.003658	.009379	.011203	.006016	.006360	.004514	.004079	.004638	.003789	.005197	.003332	.004654	.010256	.004493	.001064	.000941	.000676	.000430	.0007136	.001718	.005200	.000375	Flour, Bread, Sugar etc.	20.3	13				
14	21 Beverage Industries	.000000	.004523	.000761	.005334	.005294	.011048	.002125	.001797	.000985	.001035	.012552	.010757	.002731	.007100	.002468	.000600	.001680	.001996	.001524	.001586	.002852	.001310	.001124	.002954	.001881	.1117	.007604	.001438	.001305	.004163	.002877	.001400	.000930	.001004	.001052	.000943	.000902	.000961	.001105	.001817	.001543	.001541	.000322	.000340	.000273	.000178	.000917	.000714	.001607	.000133	Beverage Industries	21	14			
15	22.1 Tobacco Leaf Processing	-	-	-	-	-	-	-	-	-	-	-	-	-	1.000000	.006486	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Tobacco Leaf Processing	22.1	15				
16	22.2 Tobacco Manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.002800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Tobacco Manufacture	22.2	16	
17	23.1 Cotton Industry	.001749	.001326	.002715	.002523	.001450	.002939	.002869	.001726	.006669	.002803	.002678	.006106	.004555	.002805	.002173	.000897	1.356200	.045912	.133980	.096018	.008633	.447770	.008042	.019802	.001952	.006556	.010080	.159840	.003173	.012655	.108380	.003352	.001827	.004723	.002865	.000350	.002023	.002748	.002049	.002656	.011396	.002526	.000642	.000794	.000243	.000339	.001755	.001899	.003624	.000154	Cotton Industry	23.1	17			
18	23.2 Wool Industry	.001266	.000496	.001313	.001803	.000742	.001459	.001110	.001305	.003924	.000522	.001019	.001461	.000924	.000539	.001564	.000563	.002383	1.540400	.450700	.100330	.002819	.007085	.000796	.000720	.000772	.000508	.001852	.006397	.001302	.001040	.004987	.000749	.000729	.001689	.000774	.000787	.000577	.000572	.000757	.001519	.001508	.000593	.000138	.000153	.000053	.000067	.000191	.001055	.002261	.000037	Wool Industry	23.2	18			
19	23.3 Knitting	.000018	.000006	.000018	.000025	.000006	.000020	.000015	.000018	.000056	.000004	.000014	.000000	.000007	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	Knitting	23.3	19
20	23.4 Other Textile Industry	.001375	.004464	.012402	.019969	.004310	.001346	.011761	.014107	.004272	.001503	.009406	.014628	.008398	.004392	.016081	.0																																								

A. KOUTSOYIANNIS in association with A. GANAS, assisted by a team of Experts and Research Assistants